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ABSTRACT

If computer assisted instruction is to become viable in the speech communication classroom, the curriculum must be changed to include a discussion of the types of educational materials and formats that are possible and available for classroom use. Furthermore, the teacher and student need to know the capabilities of commercially available "authoring" packages or languages. In addition, since there are few programs applicable to the teaching of speech communication at any level, there is a need for a unit on courseware evaluation and review. Closely associated to the problem of limited computer assisted instructional programs is the availability or access to the computer itself. Naturally, before any increase in the use of microcomputers can take place, the faculty and students must be viewed as viable users of the computer. To prepare for the advent of the microcomputer in the speech communication classroom, teachers and students must receive training in computer literacy. Institutional and state teacher certification requirements should be altered to include computer literacy in the related curriculum. National, regional, and state organizations should continue to develop programs and short courses dealing with computer applications. Finally, to generate high quality courseware, editors of professional journals should be encouraged to print critical reviews of relevant courseware. Teachers and reviewers should make use of established software evaluation sheets to insure a comprehensive review and evaluation, and communication educators need to get involved in the process of creating programs to at least insure accuracy and relevance of content. (HOD)

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THE FUTURE OF THE MICROCOMPUTER IN THE SPEECH COMMUNICATION CLASSROOM

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The Future of the Microcomputer in
the Speech Communication Classroom

The Stevens Institute of Technology, which this fall is requiring some of its entering freshmen to purchase microcomputers for use in their science and mathematics courses, will begin distributing the machines to 110 students this week. (McDonald, 1982, p. 3)

Computer assistance is being used at all age levels in the United States, as it is a general facility which can be adapted to various purposes and modes of communication. (Zinn, 1981, p. 48 in Rushby, 1981)

"Chips with everything" has taken on a new meaning. Articles in the popular press predict that microprocessors will revolutionize many aspects of everyday life. But what about education? (Howe and du Boulay, 1981, p. 119 in Rushby, 1981)

At Harvard Business School the personal computer has become fashionable. Pittsburgh's Carnegie-Mellon University, . . . is studying an ambitious plan to equip all of its students with personal computers, creating a population of 6,000 to 7,000 machines--all wired together and communicating with each other. (Newsweek, 1982, p. 54)

The question facing schools today is not whether they can afford to implement computers into their instructional program, but rather whether they can afford not to. (Bristol, 1982, p. 49)

(Regarding computers) If you were born before 1965, boy, you're going to be out of it. (Golden, 1982, p. 55)

Bill Holloway, a professor of computer education at the University of Kansas, calls the spread of small computers in the classroom nothing less than an avalanche. According to various industry studies, there may be from 300,000 to 650,000 computers in the schools by 1985. (Golden, 1982, p. 54)

Computers are rapidly becoming an essential part of the general college curriculum. At several institutions, "computer literacy" is now required for graduation. (Magarrell, 1982, p. 1)

Assuming the authors of the above observations are correct, the logical question is, "What is the future of the microcomputer in the speech communication classroom?" To answer this question this paper deals first with the issues of computer literacy, computer access, and software availability. Second, the paper discusses what the immediate future holds for the speech communication educator and student alike. Finally, the paper closes with a series of recommendations for action on our part if we are to make the most of the potential offered by the microcomputer.

Computer literacy refers to the users' general understanding of the power and potential of a computer system. Typically, a computer literacy program (curriculum) covers such topics as:

1. Computer capabilities and limitations
2. Applications of computers in everyday life
3. Impact of computers on society
4. Computer system components
5. Introduction to computer programming
   (Douglas and Neights, p. 9)

However, if Computer Assisted Instruction, or CAI, in general and microcomputers specifically are to become viable in the speech communication classroom, the curriculum must be changed to include a number of important issues. First, it must include a discussion of the types of educational materials and formats which are possible and available for classroom use. Marie Dence (1980, p. 50) reviews the formats which include "Tutorial (for first time presentation of material), Drill and Practice (for drill on information obtained from other sources), Problem Solving, Gaming, Simulation, Inquiry, and Dialogue."

Second, the teacher/student needs to know the capabilities of commercially available "authoring" packages or languages. An author language is defined as "a programming language designed specifically for the task of writing CAI programs." (Rushby, 1979, p. 113) TRS-80 Micro Pilot Mentor Master, the Game Show, and Logo are typical of such CAI authoring programs. (For a critical review of these programs see Hardy and Elfner, 1982, pp. 34-37; Glenn, 1982, pp. 38-48; Abelson, 1982, pp. 88-112)

Third, a unit on courseware evaluation/review is a must. The future teacher using CAI materials needs to know what "good" CAI programs are like, what to look for in both the program and its accompanying documentation. (For brief but excellent examples of forms and procedures relating to the evaluation of CAI material see Heck, Johnson, and Konsky, 1981; Douglas and Neights, "Evaluator's Guide for Microcomputer-Based Instructional Packages")

Besides the role of computer literacy in the use of microcomputers in the speech communication classroom is the issue of relevant programs. A brief review of the literature and catalogs of CAI programs reveals the

locus of most educational programs and one must also assume the locus of the computer as well. Wang (1976, in Leiblum, 1981) reports, "A study of the 1976 edition of the 'Index to Computer-Based Learning' reveals that the greatest number of programmes deal with mathematics (30 percent of the 1324 listings), while health sciences, chemistry, computer science, biological sciences, and physics combined form 55 percent of the total. The remaining 15 percent deals with a diversity of subjects too numerous to mention (p. 95)." Dence (1980) includes references to courseware in such areas as a variety of languages including English, Russian, German, and Arabic. However, the emphasis seems to remain in the areas of science, math, and computer science.

Specifically, a review of Van Diver and Love's (1981) "Educator's handbook and software directory for microcomputers" and the "Radio Shack TRS-80 applications software sourcebook" (1982) reveals no listings directly applicable to teaching speech communication at any level. There are a few programs relating to perception in general, but the focus is not on communication per se.

Closely associated to the problem of limited CAI programs for communication is the availability or access to the computer itself. Most reports concerning an institution's use of microcomputers in both public schools and colleges reflect a limited number per building (usually one or two per building and those are housed in the math department). Naturally, before any increase in use of microcomputers can take place in speech communication, our teachers and students must be viewed as viable users of the computer.

However, since it takes time, money, and effort, to institute meaningful curricular changes and programs it is necessary to discuss what will transpire in the meantime. The first word of warning is that the change should be relatively slow. Commercial publishers such as Addison-Wesley Publishing Company and Wadsworth Electronic Publishers maintain that their market analysis does not reflect sufficient interest or demand in the area of speech communication to warrant their involvement in computer courseware in our field.

What then will we have in the area? First, we will find instructors using the authoring packages discussed earlier. Specifically, these authoring packages are of two types. One type is the word processing program such as Radio Shack's "Scripsit" and "Superscripsit" and Apple Corporation's "Apple Writer I" and "Apple Writer II."

These programs require absolutely no knowledge of programming. Since the programs come with written and audio instructional lessons the use of the material can be learned quite easily. These program are currently being used by students in a variety of journalism classes and by faculty in the production of articles and papers. The use of the word processor for other CAI purposes appears limited.

Apple Corporation's "Apple Pilot" and "Super Pilot" and Radio Shack's "Quick Quiz," "Micro Pilot," and "Pilot Plus" programs typify the second

type of authoring package. In general, these programs require little knowledge of computer programming. However, they are generally limited to the presentation of a designated number of True/False questions or multiple choice questions. In some cases you are allowed to introduce content material prior to the test question. A further advantage of these programs are their ability to keep accurate records of student usage and scores.

The availability of low level, low quality materials will develop as more teachers and programmers realize literally thousands of students are enrolled in introductory speech classes every semester. As Burns (1981) points out the beginning CAI programmer's first inclination is to write programs which are similar to that with which she/he is most familiar.

As the initial demand is recognized by programmers and publishers the initial reaction will be to meet the demand as quickly as possible. As a result the quality of the program usually suffers. As Burke (1982) points out, it takes approximately "two hundred hours to produce, field test, and validate a one-hour lesson segment (p. 25)." Therefore, it is safe to assume the bulk of the initial material will be of a lower quality and drill and practice in nature.

The rationale expressed above accounts for the likelihood that a good amount of CAI material in speech communication will focus on testing. The testing will consist of some combination of diagnostic or pre- and post-testing approaches. This electronic test technique does have the advantages of immediate scoring and record keeping. However, this relatively unimaginative approach relegates the computer to a mere piece of "electronic" paper.

Some of the more interesting uses of the microcomputer could involve the use of animation. I can foresee this approach being used in the development of CAI materials in such areas as perception, attribution theory, conflict, and especially nonverbal communication. Animation can supplement the text simply by expanding the time dimension and controlling the order and amount of information/images displayed at one time.

Patience is another aspect of the computer as a teaching tool. Interactive programs could be developed where the student plays such conflict exercises as the Prisoner's Dilemma Game. However, the program can be such that the computer will play cooperatively or in a conflict mode. As the student plays according to a variety of schemes he/she will experience firsthand the feelings of success, betrayal and frustration such conflict games were designed to elicit.

The graphic capabilities of the microcomputer is currently being used to develop programs to assist students in creating their own models of communication. The initial testing shows students enjoy the assignment and feel they learn from it. Some students event volunteer to redo the exercise three or four times. (Ashmore, 1982)

Experimental simulations are yet another type of program which is possible on the microcomputer. Such a program could easily demonstrate the

impact of a variety of sampling techniques, measurement tools, and statistical applications. Such programs could be used not only to demonstrate the impact of given researcher's choices, but also to reflect a replication of a unique or classic study.

Ingals (1982) reports Theodore F. Sheckels, Director of Forensics at Randolph-Mason College, has developed a debate program designed to teach/develop skills in analysis, speaker responsibility, and cross-examination techniques. We can reasonably expect future programs to include sound and possible incorporation of video taped examples under the control of the student and the computer.

If the above prognostications concerning computer literacy and courseware development are at all correct it will stand us in hand to prepare for the advent of the microcomputer in our classrooms in the most efficient way possible. The following recommendations are made to address the issue of computer literacy for both teacher and student:

1. Public schools and institutions of higher education should provide workshops, inservice training programs, and short courses for credit which emphasize the eight (8) aspects of computer literacy discussed earlier.

2. National, regional, and state organizations should continue to develop and offer short courses, programs, and panels dealing with both computer literacy and computer applications in the communication area.

3. Editors of national, regional, and state journals should be encouraged to gather, evaluate, and publish quality articles dealing with CAI in communication.

4. Institutional and state teacher certification requirements should be altered to include computer literacy in the related curriculum.

5. All workshops and seminars should stress a hands-on approach when and where ever possible.

6. Public school and institutions of higher education adminstrators should be made aware of both our computer literacy and computer access needs and concerns.

7. All communication educators need to convince commercial suppliers of our need for quality software for our discipline. It is only in this manner will they realize a market exists.

The following recommendations are directed at the issue of generating high quality CAI courseware for our discipline.

1. All CAI courseware should be accompanied by a complete description of the program and a set of directions for its use (i.e., documentation).

2. All purchases of CAI courseware should be made on a review and approval basis.

3. Editors of national, regional, and state journals should be encouraged to print critical reviews of courseware relevant to the communication discipline.

4. Teachers and reviewers should make use of established software evaluation sheets to insure a comprehensive review and evaluation.

5. Communication educators need to get involved in the process of creating programs to at least insure accuracy and relevance of content.

6. Where applicable, the generation of quality CAI material should be regarded and rewarded as a contribution to the field of speech communication.

It is the expressed intent of this paper that we as a discipline can and should learn from the efforts, mistakes, and successes of others and proceed in an efficient and orderly manner to make the most of a potentially powerful learning tool. Should we shun, ignore, or hide from the computer's existence we may find our computer literate students of the future doing the same thing to us.

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